PB83-161922

Health and Environmental Effects Profile for Busan 90

(U.S.) Environmental Protection Agency
Cincinnati, OH

Jan 84

U.S. Department of Commerce
National Technical Information Service
NTIS

PB88-161922

EPA/600/X-84/252
January 1984

HEALTH AND ENVIRONMENTAL EFFECTS PROFILE FOR BUSAN 90

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REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL
INFORMATION SERVICE
SPRINGFIELD, VA. 22161

TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)		
1. REPORT NO. EPA/600/X-84/252	2.	3. RECIPIENT'S ACCESSION NO. PB88 161922/AS
4. TITLE AND SUBTITLE Health and Environmental Effects Profile for Busan 90		5. REPORT DATE January 1984
		6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)		8. PERFORMING ORGANIZATION REPORT NO
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT NO.
		11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS Environmental Criteria and Assessment Office Office of Research and Development U.S. Environmental Protection Agency Cincinnati, OH 45268		13. TYPE OF REPORT AND PERIOD COVERED
		14. SPONSORING AGENCY CODE EPA/600/22
15. SUPPLEMENTARY NOTES		

16. ABSTRACT

The Health and Environmental Effects Profile for Busan 90 was prepared by the Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH for the Office of Solid Waste to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files were evaluated as they pertained to potential human health, aquatic life and environmental effects of hazardous waste constituents.

Quantitative estimates have been presented provided sufficient data are available. Existing data are insufficient to determine an Acceptable Daily Intake (ADI) or a carcinogenic potency factor for Busan 90.

17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field Group
18. DISTRIBUTION STATEMENT Public	19. SECURITY CLASS (This Report) Unclassified	21. NO. OF PAGES 17
	20. SECURITY CLASS (This page) Unclassified	22. PRICE PC $12.95 / MF 6.95

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

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This document has been reviewed in accordance with U.S. Environmental Protection Agency policy and approved for publication. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

PREFACE

Health and Environmental Effects Profiles (HEEPs) are prepared for the Office of Solid Waste by the Office of Health and Environmental Assessment. The HEEPs are intended to support listings of hazardous constituents of a wide range of waste streams under Section 3001 of the Resource Conservation and Recovery Act (RCRA). Both published literature and information obtained from Agency program office files are evaluated as they pertain to potential human health, aquatic life and environmental effects of hazardous waste constituents. The literature searched and the dates of the searches are included in the section titled "Appendix: Literature Searched."

Quantitative estimates are presented provided sufficient data are available. For systemic toxicants, these include, Acceptable Daily Intakes (ADIs) for chronic exposures. An ADI is defined as the amount of a chemical to which humans can be exposed on a daily basis over an extended period of time (usually a lifetime) without suffering a deleterious effect. In the case of suspected carcinogens, ADIs are not estimated in this document series. Instead, a carcinogenic potency factor or q_1^* is provided. These potency estimates are derived for both oral and inhalation exposures where possible. In addition, unit risk estimates for air and drinking water are presented based on inhalation and oral data, respectively.

The first draft of this document was prepared by Syracuse Research Corporation under EPA Contract No. 68-03-3228. The document was subsequently revised after reviews by staff within the Office of Health and Environmental Assessment: Carcinogen Assessment Group, Reproductive Effects Assessment Group, Exposure Assessment Group, and the Environmental Criteria and Assessment Office in Cincinnati.

The HEEPs will become part of the EPA RCRA docket.

ACKNOWLEDGEMENTS

The initial draft of this report was prepared by Syracuse Research Corporation under Contract No. 68-03-3228 for U.S. EPA's Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Cincinnati, OH. Dr. Christopher DeRosa was the Technical Project Monitor and Helen Ball was the Project Officer. The final documents in this series were prepared for the Office of Solid Waste, Washington, DC.

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1. INTRODUCTION

1.1. STRUCTURE AND CAS NUMBER

Busan 90 is the common name for 2-bromo-4-hydroxy-acetophenone, p-hydroxyphenacyl bromide or 2-bromo-1-(4-hydroxyphenol)-ethanone (U.S. EPA/NIH, 1983). The structure of Busan 90 is given below (U.S. EPA/NIH, 1983).

Empirical formula: $C_8H_7O_2Br$

Molecular weight: 215

The Chemical Abstracts Service (CAS) Registry number for Busan 90 is 2491-38-5.

1.2. PHYSICAL AND CHEMICAL PROPERTIES

The physical and chemical properties of Busan 90 were not located in the available literature. (Additional classified information is available. See Chapter 8 for a more complete explanation.)

1.3. PRODUCTION DATA

Busan 90 was produced in 1976 by Buckman Laboratories, Memphis, TN. No production volume was provided (USITC, 1977). The compound has been synthesized by reacting p-hydroxyacetophenone in chloroform with cupric bromide in ethyl acetate (Durden et al., 1980). (See Appendix for literature searched; also additional classified information is available. See Chapter 8 for a more complete explanation.)

1.4. USE DATA

Busan 90 has been used as a fungicide, an antibacterial agent, a starting product in pharmaceutical compositions, and a preservative for paper coating formulations.

2. ENVIRONMENTAL FATE AND TRANSPORT PROCESSES

Pertinent data regarding the environmental fate of Busan 90 were not located in the available literature. As an acetophenone, Busan 90 may be subject to rapid photodegradation.

3. EXPOSURE

Pertinent data regarding the measurement of Busan in the environment or elsewhere were not located in the available literature. (Additional classified information is available. See Chapter 8 for a more complete explanation.)

4. PHARMACOKINETICS

Pertinent data regarding the absorption, distribution, metabolism or excretion of Busan 90 were not located in the available literature. (Additional classified information is available. See Chapter 8 for a more complete explanation.)

5. EFFECTS

5.1. CARCINOGENICITY

Pertinent data regarding the carcinogenicity of Busan 90 were not located in the available literature. This compound is not scheduled for testing by the National Toxicology Program (NTP, 1983).

5.2. MUTAGENICITY

Pertinent data regarding the mutagenicity of Busan 90 were not located in the available literature.

5.3. TERATOGENICITY

Pertinent data regarding the teratogenicity of Busan 90 were not located in the available literature.

5.4. OTHER REPRODUCTIVE EFFECTS

Pertinent data regarding other possible reproductive effects were not located in the available literature.

5.5. CHRONIC AND SUBCHRONIC TOXICITY

Pertinent data regarding the chronic or subchronic toxicity of Busan 90 were not located in the available literature.

5.6. OTHER RELEVANT EFFECTS

Pertinent data regarding the acute toxicity or other possible effects of Busan 90 were not located in the available literature. (Additional classified information is available. See Chapter 8 for a more complete explanation.)

6. AQUATIC TOXICITY

The 24- and 48-hour LC_{50} values for Busan 90 (100% purity) in harlequin fish, Rasbora heteromorpha, tested in hard water (250 mg $CaCO_3$/ℓ) were 1.8 and 1.5 mg/ℓ (Alabaster, 1969). In soft water conditions (20 mg $CaCO_3$/ℓ) the 24-hour LC_{50} was 1.2 mg Busan 90/ℓ. Based on toxicity data from a test of 4 days duration, the estimated concentration at which about 50% of the fish would be killed in 3 months was 0.9 mg/ℓ.

Additional data regarding the effects of Busan 90 on aquatic organisms or the aquatic environment were not located in the available literature. (Additional classified information is available. See Chapter 8 for a more complete explanation.)

7. EXISTING GUIDELINES AND STANDARDS

7.1. HUMAN

No existing guidelines or standards for Busan 90 were located in the available literature. The American Conference of Governmental Industrial Hygienists has not established a TLV for Busan 90 (ACGIH, 1980, 1982).

7.2. AQUATIC

Guidelines and standards for the protection of aquatic organisms from the toxic effects of Busan 90 were not located in the available literature. (Additional classified information is available. See Chapter 8 for a more complete explanation.)

8. RISK ASSESSMENT

No data are available for the assessment of risk associated with exposure to Busan 90.

Statements concerning available literature in this document refer to published, quotable sources and are in no way meant to imply that confidential data, which this document could not address, are not in existence. These data, which are considered Confidential Business Information (CBI), are available in summary form as a CBI Appendix that can be accessed by individuals with appropriate clearance. However, no subchronic, chronic or carcinogenicity studies of Busan 90 were available for review in the CBI Appendix to this document.

9. REFERENCES

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